

### Qualifications of Johannes P. Pfeifenberger

Johannes Pfeifenberger is a Principal and Director of *The Brattle Group*. He received a M.A. in Economics and Finance from Brandeis University and holds a M.S. ("*Diplom Ingenieur*") in Electrical Engineering, with a specialization in Power Engineering and Energy Economics from the University of Technology in Vienna, Austria. Before joining *The Brattle Group* in 1991, Mr. Pfeifenberger was a consultant with Cambridge Energy Research Associates of Cambridge, Massachusetts, and a research assistant at the Institute of Energy Economics in Vienna, Austria.

### TESTIMONY AND REGULATORY FILINGS

Before the Federal Energy Regulatory Commission, Docket No. ER04-718-000 *et al.*, Prepared Supplemental Testimony on Behalf of the Michigan Utilities, December 21, 2004 (with Sam Newell).

Before the Federal Energy Regulatory Commission, Docket No. ER04-375-002 *et al.*, Declaration re: Financial Impact of ComEd's and AEP's RTO Choices on Michigan and Wisconsin, August 13, 2004; Prepared Direct and Answering Testimony on Behalf of the Michigan-Wisconsin Utilities, September 15, 2004 (with Sam Newell).

Before the Federal Energy Regulatory Commission, Docket No. ER00-2019-0000, *California Independent System Operator Corporation*, Direct Testimony and Rebuttal Testimony on Behalf of the California Independent System Operator, February 14, 2003 and October 2, 2003.

Before the Federal Energy Regulatory Commission, Docket No. ES02-53-000, *Midwest Independent Transmission System Operator, Inc.*, Prepared Direct Testimony on Behalf of the Midwest Independent Transmission System Operator, September 24, 2002.

Before the Federal Energy Regulatory Commission, Docket No. RT01-87-001, *Midwest Independent Transmission System Operator, Inc.*, Affidavit on Behalf of the Midwest Independent Transmission System Operator, August 31, 2001 (with Peter Fox-Penner).

Before the Public Service Commission of the State of Missouri, Case No. EM-96-149, *White Paper on Incentive Regulation: Assessing Union Electric's Experimental Alternative Regulation Plan*, on behalf of Ameren Services Company, February 1, 2001 (with D.E.M. Sappington, P. Hanser, and G.N. Basheda).

Before the Federal Energy Regulatory Commission, Docket No. ER00-2019-0000, *California Independent System Operator Corporation*, Testimony before Settlement Judge on behalf of the California ISO, July 12 and August 10, 2000.

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Before the State of New York Public Service Commission, *In the Matter of Customer Billing Arrangements*, Case 99-M-0631, Affidavit on behalf of New York State Electric and Gas Corporation, April 19, 2000 (with Frank C. Graves).

Before the Federal Communications Commission, "An Economic Assessment of the Risks and Benefits of Direct Access to INTELSAT in the United States," Report filed with Comments of COMSAT Corporation, *In the Matter of Direct Access to the INTELSAT System*, IB Docket No. 98-192, File No. 60-SAT-ISP-97, December 21, 1998 (with H.S. Houthakker and J.R. Green).

Before the Federal Communications Commission, "A Response to the Economists Inc. Study: Preliminary Competition Analysis of Proposed Lockheed Martin/COMSAT Transaction," December 1998 (with Carlos Lapuerta).

Before the United States District Court, Central District of California, "Expert Report of The Brattle Group," *Comsat Corporation v. The News Corporation, Limited, et al.*, July 1, 1998.

Before the Federal Communications Commission, "Response to Comments on Comsat's Reclassification Petition," File No. 60-SAT-ISP-97, July 7, 1997 (with H.S. Houthakker and W.B. Tye).

Before the Federal Communications Commission, "The Economic Basis for Reclassification of Comsat as a Non-Dominant Carrier," Report filed *In the Matter of Comsat Corporation Petition for Forbearance from Dominant Carrier Regulation and for Reclassification As a Non-Dominant Carrier*, April 24, 1997 (with H.S. Houthakker and W.B. Tye).

Before the Federal Communications Commission, "Competition in Transoceanic Switched Voice and Private Line Services to and from the U.S.: 1997 Update," Report filed *In the Matter of Comsat Corporation Petition for Forbearance from Dominant Carrier Regulation and for Reclassification As a Non-Dominant Carrier*, April 23, 1997 (with H.S. Houthakker and W.B. Tye).

Before the Federal Communications Commission, *Response to Statement of Professor Jerry A. Hausman, in re Hughes Communications, Inc.*, File No. 2-SAT-AL-97(11), *et al.*, December 19, 1996 (with William B. Tye).

Before the Federal Communications Commission, *The Economic Implications of the Proposed Hughes-PanAmSat Transaction*, Written Statement in *re Hughes Communications, Inc.*, File No. 2-SAT-AL-97(11), *et al.*, December 2, 1996 (with William B. Tye).

Before the Federal Communications Commission, "Competition in the Market for Trans-Oceanic Video Services to and from the U.S.," Report filed *In the Matter of Comsat Corporation Petition for Partial Relief from the Current Regulatory Treatment of Comsat World Systems' Switched Voice, Private Line, and Video and Audio Services*, Docket No. RM-7913, October 24, 1996, (with H.S. Houthakker and W.B. Tye).

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Before the U.S. House of Representatives, Committee on Commerce, Subcommittee on Telecommunications and Finance, *Oversight Hearing on the Restructuring of the International Satellite Organizations*, Written Testimony, September 25, 1996.

Before the Federal Communications Commission, "Competition in the Market for Trans-Oceanic Facilities-Based Telecommunications Services," Report filed *In the Matter of Petition for Partial Relief From the Current Regulatory Treatment of COMSAT World Systems' Switched Voice, Private Line, and Video and Audio Services*, RM-7913, June 24, 1994 (with H.S. Houthakker and W.B. Tye).

Before the State of New York Public Service Commission, *Fuel Switching and Demand Side Management*, Prepared Testimony on behalf of National Fuel Gas Distribution Company, Case Nos. 28223 and 29409, September 1992 (with David M. Weinstein).

#### ARTICLES, REPORTS AND PRESENTATIONS

"Keeping Up with Retail Access? Developments in U.S. Restructuring and Resource Procurement for Regulated Retail Service," *The Electricity Journal*, December 2004, pp. 50-64 (with J.B. Wharton and A.C. Schumacher).

"What is Reasonable? How to Benchmark Return on Equity (ROE) and Depreciation Expense in Utility Rate Cases," *Public Utilities Fortnightly*, October 15, 2003, pp. 40-44 (with Mark W. Jenkins).

"Efficiency as a Discovery Process: Why Enhanced Incentives Outperform Regulatory Mandates," *The Electricity Journal*, January-February 2003 (with Dennis L. Weisman).

"Big City Bias: The Problem with Simple Rate Comparisons," *Public Utilities Fortnightly*, December 2002, pp. 30-24 (with Mark W. Jenkins).

*Power Market Design in Europe: The Experience in the U.K. and Scandinavia*, Energy Bar Association, 56<sup>th</sup> Annual Meeting, Washington, D.C., April 18, 2002 (with Carlos Lapuerta).

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"Transmission Access, Episode II: FERC's Journey Has Only Begun," *Public Utilities Fortnightly*, August 1999, pp. 44-48 (with Peter S. Fox-Penner).

"Netzzugang in Deutschland im internationalen Vergleich," (International Benchmarking of German Transmission Access) *Energiewirtschaftliche Tagesfragen*, July 1999 (with C. Lapuerta, W. Pfaffenberger, and J. Weiss).

"Netzzugang in Deutschland – ein Ländervergleich" (Transmission Access in Germany – an International Comparison), *Wirtschaftswelt Energie*, March 1999, pp. 9-11 (Part I) and April 1999, pp. 12-14 (Part II) (with C. Lapuerta and W. Pfaffenberger).

*Transmission Access in Germany Compared to Other Transmission Markets*, commissioned by Enron Europe Ltd., December 1998, updated February 1999 (with C. Lapuerta and W. Pfaffenberger).

"Competition to International Satellite Communications Services," *Information Economics and Policy*, Vol. 10 (1998) 403-430 (with Hendrik S. Houthakker).

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*Distributed Generation: Threats and Opportunities*, Electric Distribution Conference, Denver Colorado, April 28-29, 1998 (with P.Q. Hanser and D.B. Chodorow).

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*Joint Response to the Satellite Users' Coalition "Analysis of the Privatization of the Intergovernmental Satellite Organizations as Proposed in H.R. 1872 and S. 1382"*, March 9, 1998 (with H.S. Houthakker, M. Schwartz, W.B. Tye, and M.A. Maniatis).

"What's in the Cards for Distributed Resources?," *The Energy Journal*, Special Issue, January 1998 (with P.A. Ammann and P. Hanser).

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"Considerations in the Design of ISO and Power Exchange Protocols: Procurement Bidding and Market Rules," *Electric Utility Consultants Bulk Power Markets Conference*, Vail, Colorado, June 4, 1997 (with Frank C. Graves).

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"Introduction to Market Power Concerns in a Restructured Electric Industry," *TBG Presentation*, July 1996 (with others).

"Does Intelsat Face Effective Competition," Columbia Institute for Tele-Information, Conference, April 26, 1996, (with Hendrik S. Houthakker, Harvard University).

"Distributed Generation Technology in a Newly Competitive Electric Power Industry," *American Power Conference*, Chicago, April 10, 1996 (with P.A. Ammann and G.A. Taylor).

"Handle with Care: A Primer on Incentive Regulation," *Energy Policy*, Vol 13, No. 8, September 1995 (with William B. Tye).

"Measuring Property Value Impacts of Hazardous Waste Sites," Air & Waste Management Association, 88th Annual Meeting, June 18-23, 1995 (with Kenneth T. Wise).

"The Not-So-Strange Economics of Stranded Investments," *The Electricity Journal*, Reply, November 1994 (with William B. Tye).

"Purchased Power: Hidden Costs or Benefits?," *The Electricity Journal*, September 1994 (with S. Johnson, A.L. Kolbe, and D.M. Weinstein).

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"Evaluation of Demand-Side Management Programs," *Capital Budgeting Notebook*, Electric Power Research Institute, Chapter 12, 1994 (with others).

"Purchased Power Risks and Rewards," Report for the *Edison Electric Institute*, Fall 1993 (with S. Johnson and A.L. Kolbe).

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"It's Time For A Market-based Approach to Demand-side Management," PowerGen '93 Conference, November 1993 (with A. Lawrence Kolbe).

"Incentive Regulation: Dos and Don'ts," Electric Utility Consultants: Strategic Utility Planning Conference, June 1993 (with William B. Tye).

"It's Time For A Market-based Approach to DSM," *The Electricity Journal*, May, 1993 (with A.L. Kolbe, M.A. Maniatis, and D.M. Weinstein).

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"Fuel Switching and Demand-side Management," *Public Utilities Fortnightly*, May 1, 1992 (with David Weinstein).

*Development of Sectoral Energy Requirements in the Japanese Economy: 1970 to 1980*, Master's Project in International Economics, Brandeis University, May 1991.

"The Costs of Hydropower: Evidence on Learning-by-Doing, Economies of Scale, and Resource Constraints in Austria," *International Journal of Energy Research*, Vol. 14, pp. 893-899, 1990 (with Franz Wirl).

"Eine ökonomische Analyse alternativer Kraftwerkstypen" (an economic analysis of power supply alternatives), *Girozentrale Quartalshefte*, pp. 21-30, January 1990 (with Franz Wirl).

"Eine einfache Charakterisierung der saisonalen Elektrizitätsnachfrage" (a simple characterization of seasonal electricity demand), *Österreichische Zeitschrift für Elektrizitätswirtschaft*, March 1990.

*Kraftwerksausbauplanung mit Linearen Optimierungsmodellen am Beispiel Österreichs* (power systems expansion planning for Austria with mixed-integer and linear-programming models), Master's Thesis, Institute of Energy Economics, University of Technology, Vienna, May 1989.